1938-41

File No. 2272/36 -I

A CLASS

P. W **DEPARTMENT**
M **BRANCH**

Subject:— Hydro-Electric Projects-
Bombay Province
Investigations in connection with—

P. 4m

11

11 K 11/41

File No. 2272/36-I-M

Ftd. Sectt. Slip. 24 A

G R., G D., No 2408, dated 22-5-22.]

Correspondence

DOCKET SHEET (B)

Subject :—

File No. 2272/36-F

P. W. DEPT.

M. BRANCH.

References :—

Separated from the original file A (M)

Date.	To whom sent.	Notes and instructions.

Telephone Message communicated to Mr. W.X.Mascarenhas at 12-45 noon on the 23rd February 1938 .

INVESTIGATIONS FOR HYDRO-ELECTRIC PROJECTS.

With regard to the enquiry made regarding Hydro-Electric Projects in the Province of Bombay, Sir M.Visvesvaraya wishes to communicate the following message to you:-

"It may not be desirable to appoint a Hydro-Electric Engineer all at once to investigate such schemes. As the term hydro-electric implies, every project will be in two parts:-

(1) Hydraulic, and

(2) Electrical

The hydraulic part is the more difficult one and requires prolonged preliminary investigation . This work can be easily done by a competent Irrigation Engineer of the Public Works Department.

2. There will probably be about half a dozen places in the whole Province which are suitable for the generation of hydro-electric power. Even if there are more, the resources of Government will not permit of their carrying out more than one or two shcems at a time .

3. The information required for each project will be:-

(1) The discahrges available, in cubic feet per second, fr from the storage reservoir or stream at the fall (measured month by month if possible.)

(2) Longitudinal sections showing the precise fall availab ble measured in feet.

After this information is collected for half a dozen most promising sites, one to three of them may be chosen for detailed investigation.

4. When information regarding the hydraulic part is ready, companies interested in the manufacture of hydraulic machinery and electrical plant will of their own accord supply competitive schemes in full detial.

5. Mr. Forbes is a competent engineer. If it is proposed to

utilise his services, the foregoing information should be ri.. collected either through Executive Engineers of Districts, or, preferably, by placing a competent Engineer of the Public Works Department on special duty for about a year.

.....

Survey of the entire power resources of the Proince of Bombay: Orders in connection with the-

GOVERNMENT OF BOMBAY.

PUBLIC WORKS DEPARTMENT.

Resolution No. 2272/36 .

Bombay Castle, 27th July 1938.

Resolution of Government.

Government are pleased to direct that the Electrical Engineer to Government and the Director of Industries should jointly make a survey of the entire power resources of the Province Of Bombay with special reference to the possibility of establishing big central thermal and hydro power houses to generate electricity at chap and economic rates and to put up a grid system interlinking the various power houses in the Province of Bombay to make electrical energy available both in urban and rural areas at the cheap rates and to submit their joint report as expeditiously as possible. They may consult representatives of important existing electric schemes of the type they may have under consideration if they think it necessary.

2. The services of an officer of the Irrigation Department, Public Works Department (Mr. N.B. Gadre, I.S.E.) and a suitable officer of the Electrical Department will be placed at the disposal of the Electrical Engineer to Government and the Director of Industries to assist them in working out the details of any scheme when such assistance is found necessary. Due notice should be given when the services of such officers are required so that their relief may be arranged.

3. All Commissioners and Superintending Engineers should give such help to the Electrical Engineer to Governmentand the Director of Industries as is asked for by them from time to time

Submitted separately

Before going on tour tomorrow I want information re: Asoga Dam, Dhupdal Tank etc. I asked El.Engr. to put up a note (brief) on the electric projects in Belgaum, Dharwar and Jog. Ask him for it.

Id.C.E.A.
21-12-38.

W
21/12

P. W. D.

(M. B.) Submitted

2. The El. Engr. to Govt. may be requested to furnish immediately the note on the electric projects and to lay the

21-12-38

21/12/38

Immediate
Copy of note
21/12/38

PUBLIC WORKS DEPARTMENT
File No.
21 DEC 1938
Serial No.

S.No.	River or Site.	Catchment area Sq.miles.	Average rainfall Inches.	Probable constant flow Cusecs.	Head Ft.	Pr co nu po K.
1	2	3	4	5	6	
1.	Kalinadi River, near Kheda Village, North Kanara.	107	127	650	800	(In 80 3
2.	Kaneri River, tributary of Kalinadi River, North Kanara.	145	60 (min.)	600	1150	(I 10 4
3.	Sonda River, tributary of Gangavali, North Kanara.	192	95.89	540	1100	(I 90 39
4.	Tadri River, North Kanara.	240	106.79	550	1400	(In 110 5
5.	Mahdeo River, tributary of Caudcaper River, Belgaum.	52		863	1400	(In 16, 8,
6.	Bene Nala, tributary of Tadri, North Kanara.	23	185	92	1200	(In 15, 7,
7.	Tattihalli River, tributary of Kalinadi North Kanara).	456	30,99	240	750	(Ins 25, 12,
8.	Bedti River, tributary of Gangavali, North Kanara.	768	44.18	333	650	(In 30, 14,

Dam.		Canal		Pipe Line		Cost.		Probable outlets for energy.
Size.	Cost (lacs)	Length (miles)	Cost (lacs)	Length (ft.)	Cost (lacs)	Meares. (lacs)	Estimated (lacs)	Towns.
8	9	10	11	12	13	14	15	16
280' x 1100' (36,300 m.c.ft.)	77	4.9	22.5	1650	3.7	223	280	Hubli (40 m Dharwar. Londa.
260' x 3000' (15000 m.c. ft).	189	9	40.5	5280	11.6	381	368	Hubli Dharwar.
250' x 5000' (18500 m.c.ft).	267	5	22.5	8000	17.6	333	320	Kadra.
200' x 2000' (13750 m.c.ft).	71	10	45	10560	23.5	266	410	Bilgi. Honavar. Kumta.
150' x 900'	17	4	18	2500	5.5	63	64	Belgaum (26 m Khanapur (17m Tallivadi.
150' x 1500' (2700 m.c.ft).	28	5	22.5	7000	15.4	87	120	(Sirsi (19 m Kumta (21 m. Honavar. Ankola.
150' x 5000' (10000 m.c.ft).	93	13	59	15000	11	198	200	Londa.
150' x 3800' (8000 m.c.ft).	65	1.5	6.8	6000	13.2	127	120	Yellapur (11 L) Karwar.

Below U.O.R.dated the 21st December 1938, from Government in the Public Works Department.

017B

No. 3182 of 1938.

Bombay, 21st December 1938.

Returned, with compliments.

2. A schedule of hydro-electric projects in the Kanara and Belgaum Districts is attached, as also plan, showing the location of the same.

(1) Gersoppa Falls (Jog) - The Mysore Government are prepared to supply the Bombay Government a maximum of 5000 E.H.P.at the rate of 0.25 anna per K.W.hour. A transmission line from Jog to Hubli, for feeding Hubli, Dharwar, Gadag, etc. is estimated to cost Rs.10,00,000.

(2) Gokak Falls -

Quantity of water required for Government liability to Gokak Mills	136 cusecs.
The present quantity taken by the Mills.	68 cusecs.
Total quantity required for Government and the Mills, which would generate a total of 5300 K.W.	380 cusecs.

The Superintending Engineer, Southern Circle, states that a site at Dadi was investigated in 1924. The storage capacity proposed is 25,558 million cubic ft. Storage required for 380 cusecs is 6000 million cubic ft. Should it be possible to construct the dam at Dadi for the originally investigated capacity and the water be utilised for the turbo-generators at the Gokak Falls, it would be possible to obtain approximately 20,000 K.W.

(3) Kalinadi - The surveyed project allows for the erection of a masonry dam near Kheda, with a storage capacity of 36,300 million cubic feet; a weir 24 miles down the river near Bomanhalli, and a canal approximately 5 miles in length to a forebay, and thence by a short pipe run to the generating station. The site is not easy of access, as it is in the midst of dense jungle, and a considerable amount of forest cutting for the overhead lines

lines, as also tunnelling for the canal will be necessary.

It will be possible to generate upto 5000 K.W.without constructing a dam, by means of the river flow, the minimum of which is given as 60 cusecs.

Electrical Engineer to Govt.

P.

Encl. 1 Schedule
1 Plan

PUBLIC WORKS DEPARTMENT
File No. 2272/36
21 DEC 1938
Serial No. 29186

2272/36

(M.B) Submitted with reference to the Secy's note on p1 ante.

2 With regard to the use of the water power at Gokak Falls, it may be stated that the R-t A has recently opined that it would not be legally possible for Govt to use during the period of the lease (99 years from 28-5-1884) the water power at Gokak Falls for generating electricity, although such use may not interfere with the requirements of the Gokak Mills.

21-12-38

Record.

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Secy

@ file 1807/35 and the separately

	River or Site.	Catchment area. Sq.miles.	Average rainfall Inches	Probable constant flow Cusecs.	Head Ft.	Probable continuous power. K.W.	Dam. Size.
	2.	3.	4.	5.	6.	7.	8.
	Kalinadi River, near Kheda Village, North Kanara.	107	127	650	800	(Instal 86,500) 35,000	280' x 1100 (36,300 m.c
2.	Kaneri River, tributary of Kalinadi River, North Kanara.	145	60 (min.)	600	1150	(Instal 100,000) 46,000	260' x 3000 (15000 m.c.1
3.	Sonda River, tributary of ~~Bedli~~ Gangavali, North Kanara.	192	95.89	540	1100	(Instal 90,000) 39,600.	250' x 5000 (18500 m.c.
4.	Tadri River, North Kanara.	240	106.79	550	1400	(Instal 110,000) 51,300	200' x 2000 (13750 m.c.
5.	Mahdeo River, tributary of Caudcaper River, Belgaum.	52		863	1400	(Instal 16,000) 8,000	150' x 900'
6.	Bene Nala, tributary of Tadri, North Kanara	23	185	92	1200	(Instal 15,000) 7,000	150' x 150 (2700 m.c.
7.	Hiranyakeshi River, Belgaum District.					(Instal 70,000)	
	(i) Masonry Dam at South of Wadi	13	274.27	100	1800	12,000	
	(ii) Main Dam at North of Dhangarwadi.	15		215	1400	20,000	
8.	Tattihalli River, tributary of Kalinadi, North Kanara)	456	39. 99	240	750	(Instal 25,000) 12,000	150' x (10000
9.	Bedti River, tributary of Gangavali, North Kanara.	768	44.18	333	650	(Instal 30,000) 14,500	150' (800

	Canal		Pipe Line		Cost		Probable outlets for energy.
Cost (lacs)	Length (miles)	Cost (lacs)	Length (Ft.)	Cost (lacs).	Meares. (lacs).	Estimated. (lacs).	Towns.
9.	10.	11.	12.	13.	14.	15.	16.
ft) 77	4.9	22.5	1650	3.7	223	280	Hubli (40 m). Dharwar. Londa.
t). 189	9	40.5	5280	11.6	381	368	Hubli. Dharwar.
ft). 267	5	22.5	8000	17.6	333	320	Kadra.
ft). 71	10	45	10560	23.5	266	410	Bilgi. Honavar. Kumta.
17	4	18	2500	5.5	63	61+	Belgaum (26 m Khanapur(17 m. Tallivadi.
t). 28	5	22.5	7000	15.4	87	120	Sirsi (19m.) Kumta (21 m.) Honavar. Ankola.
						256	Belgaum. Savantwadi.
). 93	13	59	5000	11	198	200	Londa.
.ft 5	1.5	6.8	6000	13.2	127	120	Yellapur (11m) Karwar.

Kalinadi River Hydro-Electric Project, North Kanara.

Map 48 I/7,8,11,12.

The dam site is reached from Londa station (Madras and Southern Maharatta Railway) by the main road to Supa (16 miles) and thence some 3 miles by foot-path. The site is near Kheda village and in map square No.A3 of map 48 I/11, Lat.15°-16' N. and Long. 74°-31' E., and is about 3 miles above the junction of the Kalinadi River with the Pandri River. The catchment which is partly in the ghat district, is 107 square miles in area above the dam site, and is mostly rocky or covered with thick jungle. Both the Pandri and Kalinadi are perennial streams and as a preliminary the scheme might be developed on minimum flow alone. Gauging made near the proposed pick-up weir site during 1921 showed a minimum discharge of 69 cusecs. For full development the scheme would depend on storage and flow the Pandri supplying the monsoon requirements and the Kalinadi, by the storage dam at Kheda, the water for power during the hot weather. A rain guage has been maintained at Supa and records for 30 years are available. During the monsoon of 1920 a rain gauge was put out at Diggi on the ghat edge and further guages were put out in June 1921 on the catchment. To arrive at an approximate estimate of the average rainfall over the catchment the following procedure was adopted. Areas were allotted to each of the new guages. The total rain during July 1921 at each guage was tabulated and, taking the rainfall at Diggi for this period as unity, the rain at each station during 1920 is estimated by proportion. The product of rainfall in 1920 and guage area is then found for each guage. Divding the total of these products by the whole catchment area the average rainfall over the area for 1920 is found. Comparing this with the corresponding rainfall at Supa a factor is found by which Supa rainfall in every year can be reduced to average rainfall over the catchment (see table No.25). The method is of course very approximate but in the absence of any records it is the only means of

arriving at the probable rainfall on the catchment. This method indicates that the average rainfall on the catchment for 30 years is 127 inches; the maximum 183 inches; while that the worst year gave 73 inches, and the worst two consecutive years 76 inches and 100 inches (1905 and 1906). (See table No.25).

The area of ghat catchment is steep and rocky and in the absence of any records a run-off of 70 per cent. with 180 inches rain diminishing to 40 per cent. with 70 inches rain has been assumed. Generally the Kalinadi is in deep gorge and the ground does not widen out until some height is reached. The dam at Kheda is therefore designed to be 280 ft.high and 1,100 ft.long and contains about 18 million cubic feet of masonry. A dam of these dimensions gives a storage of 36,300 m.c.ft.at a cost of Rs.297 per m.c.ft. stored. An annual deplenishment of 17,500 m.c. ft.is possible (See balance table No.26), and allowing 3 ft. evaporation and soakage losses a draw-off of 16,830 m.c.ft.is available. For safety's sake it is assumed that the Pandri supplies power for only two months of the year and hence a continous draw-off of 650 cusecs can safely be relied upon. The pipe line survey was not completed but the head will be about 800 feet., so that the continuous power available will be of the order of 35,000 K.W.

The project may be briefly described as follows:-

A masonry storage dam at 1/2 mile W.of Kheda, 280 ft. high and 1,100 ft.long. Waste water could be surplussed over a ridge on the L.H.flank, where an escape cut would have to be excavated, or alternatively by a waste water tunnel. By means of sluices in the dam, water would be drawn off the lake and run down the river some 24 miles to near Bomanhalli (map 48 I/12 and 16; Lat.15°-10' North and Long. 74°-45' East) where a pick-up weir sited near mile 6 on the Kegdal-Kulgi Road will divert it into the canal. This pick-up weir should be of the Barrage type, with under sluices to dispose of the monsoon floods. The canal will run in a southernly direction some 4.9 miles to the

forebay site, in a nala at Lat.15°-6'-20" North and Long.74°-43'-40" East. By means of a forebay dam 60 ft.high and 500 ft.long some 8 m.c.ft.will be stored, or sufficient for nearly 3-1/2 hours supply. The canal passes through difficult country and deep cuttings and tunnels will be necessary. From the forebay a short canal and tunnel will lead to the head of the pipes at a point about 3/4 miles South West of the forebay. The pipe line which is approximately 1,650 ft. long runs in a South West direction to the power house site on the R.H.Bank of the Kalinadi giving a head of some 800 ft. This includes both the Vincholi and Lalguli falls mentioned in the Preliminary Report. A probable market for the power is Hubli, 40 miles North East of the power house. The surveys are in somewhat incomplete state. Further cross-sections should be taken of the lake area to ascertain more accurately its contents. The line of the canal is open to improvement and may thereby be lengthened. The pipe line survey has yet to be made and also the survey of the power house site. It seems probable that a considerable length of light pipe line, terminating in a surge tower, would decrease the cost and improve the working of the project. By making the canal approximately three miles longer the pipes could be brought down to a power house sited at the junction of the Nagjihiri Nala with the Kalinadi (Lat. 15°-5' North and Long. 74°-41' East) with an increase of about 180 ft.in the head. This seems advisable. Rain and river guagings are very scanty and should be continued.

A very rough estimate has been made of the probable cost of the project and the assumption made are outlined below. The dam site is somewhat inaccessible and a siding would probably have to be run from Dandoli about 20 miles in length to supply materials. In all probability only stone would be available at the site. A through rate of Rs.60 per brass (100 c.ft.) has therefore been assumed for the dam. The pick-up weir would be of the barrage type as a rough approximation of its cost it has been treated as a solid block of masonry of width equal to its base dimensions, to cover

extras on sluice gates, ashlar, etc. and a rate of Rs.70 per brass has been assued. The canal will involve heavy cuttings, tunnelling and aqueducts, and would resemble the canal of the Tata Hydro-Electric works at Lonavla, though it would somewhat be cheaper. This canal cost approximately 4-1/4 lakhs per mile. The proposed Kalinadi canal would be for the same discharge. To cover increases in rates since the Tata canal was constructed the same rate per mile is assumed. To avoid the leakages of the earlier work, due mainly to boring crabs concrete rather than mosonry is advisable. Forethe forebay a rate of Rs.65 per brass has been assumed to cover cost of ashlar, sluices,etc. A rate per ton for the pipes, etc. slightly in excess of that on the Tata Hydro-Electric pipe line is assumed, to cover enhanced rates and carriage to the somewhat inaccessible site. Excavation and masonry in anchorages and bearer is estimated at Rs.40 per ton of pipes which is slightly in excess of the cost on the Tata Hydro-Electric pipe line. An estimate of the cost of the transmission line, receiving station and power house has been arrived at by comparison with the estimates prepared for the Koyna River project, by Mr.A.T.Arnall, A.M Inst.C.E. The cost per kilowatt for each item has been calculated for the Koyna project and applied tp the Kalinadi Project. A load factor of 40 per cent. has been assumed and this means the installation of plant for 86,500 K.W. Table 27 shows a summary of the probable cost of the project; but it must be remembered that the estimate is only very approximate.

STEAM STATION IN THE SOUTH AT HUBLI.

Generation Plant.

2 - Turbo-alternators each 1200 K.W.,6.6 KV. @ Rs.73,000/-	...	Rs. 1,46,000/-
2-- Water-tube boilers, each of 15000 lbs./hour evaporation at 300 lbs/sq.inch & 715°F., @ Rs.1,05,000/-	...	Rs. 2,10,000/-
2 - Transformers, each of 1500 KVA.,6600/66,000 volts, 50 cycles, @ Rs.11,000/-	...	Rs. 22,000/-
2 - Station transformers, each of 100 KVA.,6600/400 volts, 50 cycles, @ Rs.1000/-	...	Rs. 2,000/-
1 - H.T.and L.T.switchgear	...	Rs. 30,000/-
1 - Set of cables etc.	...	Rs. 7,000/-
1 - Erection of the total plant.	...	Rs. 33,000/-
Total	...	Rs. 4,50,000/-
Power Station building, including crane.	...	Rs. 60,000/-
Contingencies.	...	Rs. 15,000/-
		Rs. 5,25,000/-

Establishment @ Rs.800/- per month.

Transmission Lines. (66 KV.at Rs.9,000/- per mile).

From.	To.	Distance (Miles).	Line Cost (Rs.)	Transformer cost (Rs.)	Total Cost (Rs.)	Annual units.	Present instl-led K.W.
Hubli	Dharwar.	12	1,08,000	6,000	1,14,000	286335	244
Dharwar	Belgaum	50	4,50,000	8,000	4,58,000	512480	366
Hubli	Gadag.(33KV)	34	2,04,000	5,000	2,09,000	136421	220
					7,81,000		

Details of Costs.

	Capital Cost. Rs.	Annual Charges. Rs.
1. Generation Plant.	5,25,000	50,000
2. Transmission Lines.	7,81,000	78,100
3. Establishment in Power House.	--	9,600
	13,06,000	1,37,700 (Standing charges)

4. Fuel & lubrication etc.

Distribution of Energy:

Place.	Line losses %	Annual units sold.	Annual units generated.	Annual revenue @ ½ anna unit Rs.	Fuel cost @ Rs.1140/ 100,000KW. hour. Rs.	Annual charges on transmission lines. Rs.	Total annual charges Rs.
Hubli.	0	632,600	632,600	19,800	7,220	--	7,220.
Dharwar.	3	286,300	295,500	8,950	3,370	11,400	14,770.
Belgaum.	10	512,500	569,400	16,100	6,500	45,800	52,300.
Gadag.	5	136,400	143,800	4,300	1,640	20,900	22,540.

Stages of Development.

Item.	Capital Cost. Rs.	Annual Charges. Rs.	Annual Revenue. Rs.	Profit (+) or Loss (-) Rs.
Generating Plant.	5,25,000	59,600	--	--
Cost at Hubli.	--	7,220	19,800	
	5,25,000	66,820	19,800	- 47,020
Cost at Dharwar.	1,14,000	14,770	8,950	
	6,39,000	81,590	28,750	- 52,840
Cost at Belgaum.	4,58,000	52,300	16,100	
	10,97,000	1,33,890	44,850	- 89,040
Cost at Gadag.	2,09,000	22,540	4,300	
	13,06,000	1,56,430	49,150	-1,07,280

Electrical Engineer to Govt.

Below U.O.R.dated the 10th September 1937, from Government in the Public Works Department.

No. 2176/ 3408 of 1938.

Bombay, 4th March 1938.

Returned, with compliments.

2. A statement (pp 587) giving details of sites in the Province which have been surveyed with a view to utilising water power for generating electricity is enclosed. Detailed reports on the Bhandardara Dam and the Randha Falls fed by the Pravara River have already been submitted. A chart is attached showing the towns electrified in the Southern portion of the Province, together with the plant installed, from which it will be seen that the towns of Belgaum, Dharwar and Hubli could be grouped together and fed from a suitably placed power station, with a possibility of feeding other towns and villages as and when the populace become more electrically minded. In this connection, it is suggested that Government undertake the necessary demonstra-tion to and education of the people in the outlying districts of the Province.

3. The Belgaum Electricity Company, Ltd., whose present generating cost is 2.81 annas per kilowatt hour, have been approached and state that they are willing to take power from Government. The Dharwar Electric Supply Company's generating cost is in the neighbourhood of 3.16 annas per unit, and that of the Hubli Electricity Co.,Ltd. 1.95 annas per unit. It is considered that a rate of .5 anna per unit for the above three Supply Companies in question would be just and reasonable on the understanding that the power factor is not below .8.

4. The most suitably placed source of hydro-electric power is the Kalinadi Project; Mr.S.G.Nadkarni was deputed to investigate the site with a view to ascertaining whether it would be possible to utilise the waters of the Kalinadi, the Kaneri and the Tattihalli Rivers without going to the expense of erecting a dam, as recommended in the survey carried out in 1920, which would provide power in the neighbourhood of

36,000 K.W...

36,000 K.W.continuously. The present maximum load of the group - Belgaum, Dharwar and Hubli - is only in the neighbourhood of 1,000 K.W. It was found on investigation that the site for the power station is in the midst of dense forest and the cost of laying pipes or cutting the canal for conveying water to the power station for generating 3,000 K.W. would not be in proportion to the cost of taking advantage of the maximum power which could be produced, i.e. 36,000 K.W. Owing to the rock tunnelling and forest clearing necessary for the pipe line and the overhead power lines, it would be necessary to sell a minimum of 15,000 K.W. in order to cover the charges of the project. An extract pp11-17 from the "Hydro-Electric Survey of India" on the Kalinadi River Project is enclosed for ready reference.

5. A more economical proposition for supplying the present and estimated load than the hydro-electric scheme would be a Steam Turbine Station situated at Hubli with feeders taken therefrom to Dharwar, Belgaum and Gadag. The cost of the machinery, transmission lines, running of the station, etc. are given in the statement pp19&21 enclosed, from which it will be seen that, owing to the very poor load factor, the scheme would not be a paying one with the present obtainable load. As the plant is capable of turning out a very considerably larger quantity of units than can at present be utilised, the losses would decrease, as, and when, the public become more electrically minded. As the running costs are not inordinately high, the station is capable of making a profit.

6. Representatives of the British and Canadian Aluminium Companies were consulted with a view to their utilising power in the Bauxite area near Belgaum, and they state that should they be able to obtain power at a cheap rate, they would certainly consider using the same; as the current used for bauxite refining is a steady 24 hour load, this would help either a hydro or steam station considerably. It is understood, however, that some time will elapse before the Aluminium Companies can come to any definite decision regarding the starting up of works in this

neighbourhood ...

neighbourhood.

7. The question of utilising power from the Gersoppa Falls has been carefully considered, but owing to the site of the supply being over 100 miles from Hubli which is the nearest source for a load of any consideration, the cost of a transmission line which would be in the neighbourhood of Rs.10,00,000/- would be prohibitive.

Electrical Engineer to Govt.

P.

PUBLIC WORKS DEPARTMENT
File No. 2272/36
- 5 MAR 1938
Serial No. V 5964

2272/36/5964

P.W.Deptt.

M B.

Submitted.

2. The El.Engr.to Govt. was asked to ¶4 offer his remarks on certain schemes. He has forwarded a statement ¶¶5&7 giving details of sites which have been surveyed with a view to utilising ~~water~~ water power for generating electricity and has made certain remarks ¶¶2 3 7. The question of making survey of possibilities of developing hydro electric schemes throughout this Province either by appointing a Committee or by placing certain officers on special duty ~~for the purpose~~ is under separate consideration. No action seems therefore to be necy.on these papers.

× file 2272/36 submitted separately

3. The question of taking up Randha Falls Hydro-El.Scheme is at present under separate consideration. The Hon.the Resident in Mysore and Chief Commr.,Coorg has been asked to supply details of the hydro-electric Project which the Mysore Govt. are contemplating to start in con. with the Gersoppa Falls and to inform as to the manner in which this Govt.would be allowed to participate in it. A reply from the Hon.the Resident is awaited.

* file 2065/36 put up with file 1931/36 which is under submission.

¶ file 2044/36 will be put up, if required

4. These papers may be submitted to the H.M.,P.W.D., with ref.to para.1 of the late Secy.'s note ¶1 within.

B.K.R.
22-3-38.
205

22.3.38.

It is now 7 months since this question was raised in Secy's note page 1 + meanwhile, the subject has been discussed from many angles & by many people. I do not therefore think there is any need to worry H.M. P.W.D. now

2272/36
5964.

the purpose &c.
A Committee to decide formed by
medical men such questions as
a comprehensive code of the
regulations now collected
will no doubt be put before
this Committee by the E.C. Engr.
& Govt. Who is to be a
member yet.

30/3

Secy. As in Op. Secy's note.

31/3

Amend [illegible]
3/4
25/4

FROM;-

Rao Saheb,P.G.Halkatti B.A.L.L.B.

Secretary ,Karnatak Industries,

Development Association,Bijapur.

To;-

The Honourable Mr.M.Y.Nurie, Bar At Law,

The Minister for Public Works,

Bombay

Bombay 14th March 1938

Re;-Development of Water-power
resources in Bombay Karnatak.

Respected sir,

I have the honour to bring to your notice a representation dated 1-3-1938 made by me to the Honourable Minsiter for Finance and also to the Honourable Minister for Industries, in connection with the Development of Water-power resources in the Bombay Presidency, a copy of which is attached hereto for your information. In that representation, a request has been made to the Government of Bombay to appoint a qualified man to explore fully thepossibilities of generating Electrical energy by making use of the severel water -falls that are found in the forest-areas of the Kanara and ~~Belgaum~~ Belgaum districts. As it appears that the appointment of a qualified officer rests with the Public Works Department, I invite your attention to para 36 on page 55 Chapter VII of the Preliminary report of the Water -Power Resources of India ~~compiled~~ compiled by J.W.Meares Esqr, Chief Engineer Hydro Electric Survey of India 1919, quoting Mr, G.T.Barlows' opinion;-

"The essentials for an Engineer who is investi gating water-power sites are that he shall have

have a sound knowledge of Mechanical and Hydro -Electric Engineering.For Power-problems cannotbe dealt with satisfactorily and thoroughly except by an Engineer trainned in power-problems

So, I bring to your notice that in case any P.W.D.Officer is appointed for the purpose of Survey,he should have also the additional qualifications of being a qualified Electrical Engineer or should be assisted by an Electrical Engineer.This I believe, will ensure a reliable survey of the various water-power sites that are referred to in my representation.

Herein I make a request to you that in view of the remarks made by the Finance Minister in his speech introducing the budget for the year 1938-1939 (vide pages 10& 11 of the speech), the Government will be pleased to make an earnest move in the matter as the projects proposed will ensure the industrial and economic advancement of the country.

I beg to be
Respected sir,
Your most obedient servant.

P.G. Halkatti

Secretary,
Karnatak Industries Development
Association,Bijapur.

From,

Raosaheb P.G.Halkatti,B.A.LL.B.
Secretary, Karnatak Industries'
Development Association,
BIJAPUR.

To,

Bijapur: 1-3-1938.

Re: Development of water-power
resources in Bombay Karnatak.

Respected Sir,

(1) I have the honour to bring to your notice that the Karnatak Chamber of Commerce in its meeting held on 15-1-38 resolved that "a Karnatak Industries' Development association be formed with the object of developing industries in the Karnatak, and to do ~~whether~~ whatever is necessary to achieve this object. The central committee of this association should consist of the following gentlemen with powers to coopt and that its secretary should be Raosaheb P.G.Halkatti B.A.,LL.B. Bijapur." The names of the members are as under:-

(1) Sir,M.Visvesvaraya-Bangalore (Chairman)

(2) Mr. Y.Mahabaleshwarappa Bellary
President Karnataka Chamber of
Commerce.

(3) Mr. Murgeppa Sugandhi M.L.A. Bijapur.
Vice President Karnatak Chamber
of Commerce,

(4) Mr. Murgeppa Jengin Bagalkot } Joint Secretaries
(5) Mr. Virbhadreppa Bellary Gadag } Karnatak Chamber of Commerce.

(6) Mr. Shivbasappa Satgeri B.A.LL.B
Dharwar.

(7) Raosaheb P.G.Halkatti
B.A.LL.B.
Bijapur. (Secretary)

(2) The efforts of the association will be three fold Viz. (a)Collecting necessary in formation for the starting of small scale and large scale industries (b) Organisation of the industrially minded gentlemen in the Province with a view to advance industries suitable to the Province (c) to advise and to coordinate the work of the important educational institutions in the Province so that the financial help given by such associations to students may go to produce the right type of technical men that are needed for the growth of the industries in the Province.

(3) Our association begs to bring to your notice that there is scope for the starting of such large scale industries in the Province as the following Viz.,

(1) Paper mills (2) Cotton industries (3)Iron industries (4) Cement (5) Glass (6) Pottery (7) a match factories (8)Tobacco industry (9) Varnish, oils &c

(4) For the successful working of such industries, supply of cheap electrical power is a great necessity, Our association views with great pleasure and satisfaction the policy outlined by the Finance Minister in his speech introducing the Budget estimates for the year 1938-39 in the Bombay Legislature Assembly on 16-2-1938 and hence places the following suggestion for the consideration of Government ~~especially in the Karnatak District.~~ especially in the Kanara District.

(5) In the southern Division of the Presidency there are a number of suitable sites where Hydro-electric plants canbe conveniently erected and electrical energy generated cheaply. In this connection, I refer to the Government publication viz., "Preliminary report on the water Power resources of India" by Mr. G.T.Barlow and Mr. J.W. Meares published in the year 1919 On page 74 of the book the following sites are mentioned as suited for the gereration of electrical power viz.,

~~Karnatka~~ Kanara District.

(1) Magod falls:- They are on the Gangavalli river. They are said to be 800 feet high.(Page 74)

(2) The Borkund falls:- They are on the Kali-nadi (page74)

(3) The Vincholi falls:- They are on the Kali-nadi (Page,74)

(4) The Lalguli falls:- They are on the Kali-nadi. They are from 500 feet to 850 feet high (page 74). Here we bring to your notice that the fail waters from these Kal-nadis falls can be used for irrigation purposes and also to develop industries, especially iron which is stated to be found in the area in this report (page 74 and the map).

(5) The Lushington falls:- They are on the Tadri river or Agha nashini river which are said to be 300 feet high (page 75)

(6) The Gersoppa falls:- They are the famous falls on the Sharawati river and are 800 feet high (page 75).

(7) The Yellapur falls:- They are on the tributary to the Gangawali river near Magod falls referred to above. They are 328 feet high (page 167).

(8) The Ibihalli falls:- They are on the Sonda nala and are 300 feet high (page 167).

(9) The Nagargali falls:-They are near Kirpoli and Nagargali is a Railway station between Dharwar and Londa on the M.S.M Railway.

Belgaum District.

(10)Katabali rapids:-They are on the Ghataprabha river in Rukeri Taluka (page 106).

(11) The Markandeya falls:-They are near Gokak on the river Markandeya (page 106)

(12) Kanbargi falls:- They are 3 miles from Belgaum, then being a drop of 400 feet.

(13) Malaprabha falls:-There are rapids on the river which can be made available for generating electricity (page 74).

(6) We humbly bring to your notice that the said report does not give full information about the said falls. Only a few of them have been investigated and others are mentioned as only possible or probable sites. Hence we request that Government will depute experts to explore fully their possibilities and to advise as to which sites will yeild the best results.

(7) In this connection, we beg to bring to your notice

the desirability of investigating the Kali-nadi falls which seem to be full of promise. This river has plenty of water all through the year as it flows a long distance through the densest parts of the Knnara jungles where rainfall ranges from 100 inches to 250 inches between June and November and it joins the sea near the Karwar harbour. It has a number of falls at different places which are within easy reach of the Kanara harbours to the west and the railway stations to the east on the M.S.M. Railway. All the falls are within British territory and hence will benefit British subjects most. There is also a very fertile tract of country nearby producing cotton oil seeds and also jungles containing Bamboo, timber etc., There are also said to be iron deposits near to this place which require careful investigation. The fall-water may be used for irrigation also. Hence we suggest that the falls on the Kali-nadi should be first investigated.

(8) It is found that Punjab, Madras presidencies and the Mysore state have already made a great move in generating electricity in their respective provinces, while the Bombay Presidency which is considered to be the most industrially forward province in India has made little or no progress at all in this direction. Hence we pray that Government will take the necessary steps in this direction as early as possible.

(9) In the meanwhile our association will be moving to organize public opinion in favour of industrial activities in the province, and will undertake starting of industries and mills in the Karnatak in different places and make the fullest use of the electrical facilities which the Government may give them.

(10) As stated by the Finance Minister in his speech, it is desirable that such important power plants should be stated by Government for the use of the general public and not be allowed to go in the hands of private bodies. However if Government is not prepared to undertake such schemes then companies will be floated by us on the lines of the Tata Hydro electric power companies for carrying

carrying out the projects. But we request that Government should themselves in the first instance undertake the schemes and the public allowed to make use of the power so generated.

(11) We humbly request that the Government ~~of Bombay~~ will carefully consider the suggestions made in this appeal and help Karnataka in the development of Industries for which they will remain highly indebted,

Ibeg to be

Respected Sir,

Your most obedient servant.

P.S. Halkatti

Secretary,

Karnataka Industries Development association Bijapur.

The Secretary of the Karnatak Industries Dev. Assn., suggests the appointment of a qualified engineer to study the possibilities of the development of electrical energy at Bhandardara and at other places in the Karnatak. He also suggests that the engineer should possess knowledge of mechanical and Hydro-electric engineering. If an electrical engineer is appointed, he should be assisted by a mechanical engineer in the enquiry.

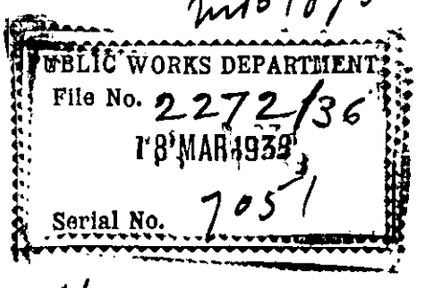
KOR.
15/3
Submitted
Hon'ble.

Acknowledge and tell him that the Govt. is considering this question

15/3

17/3

mrb 1873



Mr Parkin (urgent/1)

2272/36/7051

M.B.

Submitted with ref. to the H.M.'s orders p. 15 within.

2. The receipt of the communication within may be acknowledged as per pencilled pp. 1-3 card put up for signature.

3. The main file on the subject was refd. W.O. to the El. Engr. to Govt., the G.O. and the F.O. in succession on the 3-3-38. His return may be awaited till the end of this month.

Dal
19-3-38.

[redacted]

Issue acknowledgement

19/3/38

RB

Please issue the acknowledgement card as per the paper copy thereof and return

21/3

2273

× No. 2272/36-M,
Dt. the 22nd March 1938.

ISSUED
+ 22. MAR. 1938
WO

No.2272/36-M. of 1938,
Public Works Department,
Bombay Castle, 22nd March 1938.

Sir,

I have the honour to acknowledge the receipt of your

* Subject - Hydro-electric Projects, Bombay Province. Investigations in connection with -	* letter* dated the 14-3-1938, with accompaniment, and to

state that the question is under consideration of Government.

I have the honour to be,
Sir,
Your most obedient servant,

Sd/- P. F. Dias,

Assistant Secretary to Government.

To

Rao Saheb P. G. Halkatti, B.A.,LL.B.,
Secretary, Karnatak Industries'
Development Association,
Bijapur.

G.J.P.
24-3-38
(95)

ISSUED
24. MAR. 1938

20.5.38
Amil (20-4-38)
28/3 25/4

RECEIPT ACKNOWLEDGED
GA 30 3/38 64

From,

Raosaheb P.G.Halkatti,B.A.LL.B.
Secretary, Karnatak Industries'
Development Association,
BIJAPUR.

To,

The Hon'ble Mr. L.M.Patil B.A.
Minister for Local Self Government
and Industries Bombay Presidency.
BOMBAY.

GENERAL DEPARTMENT
File No. S-23
Dt. 4. MAR. 1938.
Serial No. 4364

Bijapur: 1-3-1938.

Re: Development of Water-power resources in Bombay Karnatak.

Respected Sir,

(1) I have the honnur to bring to your notice that the Karnatak Chamber of Commerce in its meeting held on 15-1-38 resolved that "a Karnatak Industries' Development association be formed with the object of developing industries in the Karnatak, and to do ~~whatever~~ whatever that is necessary to achieve this object. The central committee of this association should consist of the following gentlemen with powers to coopt and that its secretary should be Raosaheb P.G.Halkatti B.A.,LL.B. Bijapur."

3/3/38

The names of the members are as under:-

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(2) Mr. Y.Mahabaleshwarappa Bellary
President Karnataka Chamber of
Commerce.

(3) Mr. Murgeppa Sugandhi M.L.A. Bijapur.
Vice President Karnatak Chamber
of Commerce,

(4) Mr. Muggeppa Jengin Bagalkot) Joint Secretaries
(5) Mr. Virbhadreppa Bellary Gadag) Karnatak Chamber of Commerce.

(6) Mr. Shivbasappa Betgeri B.A.LL.B
Dharwar.

(7) Raosaheb P.G.Halkatti
B.A.LL.B.
Bijapur. (Secretary)

(2) The efforts of the association will be three fold Viz. (a) Collecting necessary in formation for the starting of small scale and large scale industries (b) Organization of the industrially minded gentlemen in the Province with a view to advance industries suitable to the Province (c) to advise and to coordinate the work of the important educational institutions in the Province so that the financial help given by such associations to students may go to produce the right type of technical men that are needed for the growth of the industries in the Province.

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(5) In the southern Division of the Presidency there are a number of suitable sites where Hydro-electric plants can be conveniently erected and electrical energy generated cheaply. In this connection, I refer to the Government publication viz., "Preliminary report on the water Power resources of India" by Mr. G.T.Barlow and Mr. J.W. Meares published in the year 1919. On page 74 of the book the following sites are mentioned as suited for the generation of electrical power viz.,

Kanara
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the desirability of investigating the Kali-nadi falls which seem to be full of promise. This river has plenty of water all through the year as it flows a long distance through the densest parts of the Kanara jungles where rainfall ranges from 100 inches to 250 inches between June and November and it joins the sea near the Karwar harbour. It has a number of falls at different places which are within easy reach of the Kanara harbours to the west and the railway stations to the east on the M.S.M. Railway. All the falls are within British territory and hence will benefit British subjects most. There is also a very fertile tract of country nearby producing cotton, oil seeds and also jungles containing Bamboo, timber etc., There are also said to be iron deposits near to this place which require careful investigation. The tail-water may be used for irrigation also. Hence we suggest that the falls on the Kali-nadi should be first investigated.

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carrying out the projects. But we request that Government should themselves in the first instance undertake the schemes and the public allowed to make use of the power ~~as~~ so generated.

(11) We humbly request that the Government ~~of Bombay~~ will carefully consider the suggestions made in this appeal and ~~keep~~ help Karnataka in the development of Industries for which they will remain highly indebted,

Ibeg to be

Respected Sir,

Your most obedient servant.

P.S. Halkatti

Secretary,

Karnataka Industries' Development association Bijapur.

General Department.

A-A a/p.2

Extract para 3 of Mr.P.G.Halkatti's letter relating to the development of large scale industries may be forwarded to the Director of Industries for disposal.

P-3-9:

2. From para 4 onwards of the letter, Mr.Halkatti has made certain suggestions regarding the investigation into the sources of water power in the S. Southern Division for utilising them in the development of electrical energy to help the successful working of large scale industries. The subject matter of this concerns the Public Works Department. It may be mentioned that from certain papers referred to kh this Department by the P.W.D. recently, it is understood that the question of developing electrical power is under consideration in that Department. After issue of the accompanying memo. to the Director, the ~~relevant extracts~~ papers may be forwarded to the P.W.D. for disposal after u.o.r.

R.P.
30/3/38

30.3.38

S.A.S

30/3/38

U.O.R. to P.W.D. 2-4-38

G.D.S.23
4364.

P.W.D.

M.B.

Submitted.

2. This deptt may agree to the proposal contained in the last sentence of the G.D. note overleaf. It is, however, presumed that that deptt will keep the necessary extracts for from these papers to deal with the question of the development of large scale industries in the Karnataka.

KH
6.4.38.

6/4/38

G.S

Encl. to the G.D. dt 12th April 1938.

GENERAL DEPARTMENT
File No. S-23
12. APR 1938
Serial No.

General Deptt.

Submitted with reference to this office note dated the 30th March '38. p-14

2. The P.W.D. have agreed to the proposed transfer of these papers. The presumption made by that Deptt. in their office note above, is correct. The attached memo may issue. on p.15.

Copies of relevant papers will be kept

RP
24/4/38.

PUBLIC WORKS DEPARTMENT
File No. G.D. S. 23/4364
-4 APR 1938
Serial No.

22.4.38

23/4/38 S.A.S

MB 5/4

6-4-38

RP

6/4/38

A-A on p-3

(below extract para (3) of the letter dated the 1st March 1938, from Rao Saheb P.G.Halkatti, B.A.LL.B., Secretary, Karnatak Industries Development Association, Bijapur, addressed to the Hon'ble the Minister for L.S.G).

No.S.23-4364-D,

General Department,

Bombay Castle, 31st March 1938.

Forwarded to the Director of Industries for disposal.

By order of the Governor of Bombay,

ISSUED
- 1. APR. 1938

Sr.Assistt.Secy. to the Govt.of Bombay,
General Department.

R.P. 30/6/38.

Secretariat 30.3.38

31.3.38

No. S-23-4364 D

General Department

Bombay Castle 25th April 1938.

Transferred to the Public Works Department accordingly.

Chadrame

Senior Assistant Secretary to the Government of Bombay, General Department.

R.P. 29/4/38.

22-4-38

2/ apl

PUBLIC WORKS DEPARTMENT
Item 2272/36
26 APR 1939
Serial No. 9983

2272/36/9983

P.W.Deptt.

M.B.

Submitted with ref.to the O.N. p 62 dated the 6th April 1938.

2. In his letter p 51-54 within the Secy., Karnatak Industries Dev.Assocn.has made certain suggestions re: investigation into the sources of water power in the S.Dn. for utilising them in the development of electrical energy to help the successful working of large scale industries. He has already sent a copy of this letter to this Deptt. p 35-43 and he has been informed that the question is under consideration of Govt. p 13

3. File 2272/36 dealing with the question of making survey of possiblities of developing hydro El. schemes throughout this Province either by appointing a committee or by placing certain officers on special duty was submitted to the H.M., P.W.D., on the 22nd March 1938. That file has not yet been recd.back. The P.A.to the H.M.may, perhaps, be requested to say whether or not the H.M.has passed orders on that file.

B.K.R.
16-5-38.
178

17.5.38.

22/5/38

The file will be returned on 6th June.

27/5

To the P.A. to the H.M., P.W.D.

PA
Pl. send to the P.A.
24/5

2272/36

U.S. P.W.D.

Submitted with my D/O the notes overleaf.

2. The ~~record~~ return of the file may be awaited.

3.6.38.

7/6.

U.S.

Resubmitted.

2. The file in question has since been recd. back and the necessary orders have been passed thereon. These papers will be resubmitted after they issue.

25.6.38.

29/6/38.

U.M. 1/7

29/6 15/8/38

2272/36 Secretary on 27/6/38

Survey of the entire power resources of the Province of Bombay: ORDERS in connection with the-

GOVERNMENT OF BOMBAY.

PUBLIC WORKS DEPARTMENT.

Resolution No. 2272/36.

Bombay Castle, 27th July 1938.

Resolution of Government.

Government are pleased to direct that the Electrical Engineer to Government and the Director of Industries should jointly make a survey of the entire power resources of the Province of Bombay with special reference to the possibility of establishing big central thermal and hydro power houses to generate electricity at cheap and economic rates and to put up a grid system interilinking the various power houses in the Province of Bombay to make electrical energy ave available both the urban and rural areas at cheap rates and to submit their joint report as expeditiously as possible. They may consult representatives of important existing electric shehemes of the type they may have under consideration if they think it necessary.

2. The services of an officer of the Irrigation Department, Public Works Department(Mr. N.B.Gadre, I.S.E.) and a suitable officer of the Electrical Department will be placed at the disposal of the Electrical Engineer to Government and the Director of Industries to assist them in working out the details of any scheme when such assistance is found necessary. Due notice should be given when the services of such officers are required so that their relief may be arranged.

3. All Commissionrs and Superintending Engineers should give such help to the Electrical Engineer to Government the Director of Industries as is asked for by them from time to time.

4. The Electrical Engineer to Government and the Director of Industries should start the work at once.

By order of the Governor of Bombay,

R.H. HAMMETT,

Deputy Secretary to Government..

G.R.No.2272/36,P.W.D. dated the 27th July 1938.

To

The Finance Department.

The General Department.

The Revenue Department.

The Secretary to Governor.

All
The Commissioners.

All Superintending Engineers.

The Electrical Engineer to Government.

The Director of Industries.

The Director of Information (for communication to the press)

The Accountant General, Bombay.

All Collectors.

All Executive Engineers.

MN.B.Gadre, Esquire, A.M.I.E.(Ind.) B.E., I.S.E.,

No. of 1938.

Copy forwarded for information and guidance to-

B.V.P.

(M.B.) Resubmitted.

2. The orders refd. to in the O.N. dated the 25-6-1938 have now been issued, vide G.R.No. 2272/36, dated the 27-7-38. The Secy., Karnatak Industries Dev. Assocn. may accordingly ~~now~~ be informed, as per draft put up, after issue of which the papers may be shown u.o. to the El. Engr. to Govt. and the Dir. of Industries.

No. 2272/36-M
P.W.D., B.C., 25 Aug. 1938.

To -

Rao Saheb P.G. Halkatti, B.A., LL.B.,
Secy., Karanatak Industries ' Dev. Assocn., Bijapur.

Subject:-Hydro-Electric projects.

Dear Sir,

In continuation of G.L.No. 2272/36-M dated the 22-3-38, I am directed to inform you that Govt. have since directed the El. Engr. to Govt. and the Dir. of Industries to make a joint survey of the entire power resources of the Province of Bombay with spl. ref. to the possibility of establishing big central thermal and hydro power houses to generate electricity at cheap & economic rates and if feasible to put up a grid system interlinking the various power houses in the Province of Bombay to make electrical energy available both in urban and rural areas at cheap rates and to submit their joint report as expeditiously as possible.

Yours faithfully,

ELECTRICAL ENGINEER TO GOVT. BOMBAY
Inwd. No. 3926
13 NOV 1938
No. BOMBAY

D.A.-Nil.

B.K.R.
23-8-38.
230

ISSUED
27 AUG 1938

Below U.O.R. No. 2272/36 dated the 31st August 1938.
from Government in the Public Works Department.

No. 2178/2773 of 1940.
Bombay, 13th November 1940.

Returned, with compliments.

2. The suggestions of the Karnatak Industries Development Association have been taken into consideration by the Hydro-Electric Survey Committee, whose report has already been submitted to Government. No further action is necessary, and the papers may be recorded.

Electrical Engineer to Govt.

DFP.

2272/36
23087

(M-B) Submitted

2 The report refers to by the Ch. Engr. to Govt. has been submitted separately. In the circumstances stated by the Ch. Engr. to Govt, no further action is called for on these papers which may be records.

file next to 1/11/40

MB 14/11

PUBLIC WORKS DEPARTMENT
File No. 2272/36
13 NOV. 1940
Serial No. 23087.

13/11 E.C.O

2272/36

P. W. D.

(K. B.)

Office Note :-

The El. Engr.

to Govt may be requested u.o.

kindly to forward, at his very early convenience, two sets

of the plans forwarded with

his letter No. D/175/2496, dated

the 23-10-1940, submitting his

report on hydro-electric

survey, Bombay Province.

A spare copy of the report, with effluxion

if available, may also please

be sent along with the two

sets of plans

29/11/40

29/11/40.

U.O. to El. Engr. to Govt. dt. 29-11-40.

30 NOV 1940

ELECTRICAL ENGINEER TO GOVERNMENT
Inwd. No. 4258
30 NOV 1940
File No. 2272
P. W. D., BOMBAY

Below U.O.R. No. 2272/36 dated the 29th November 1940, from Government in the Public Works Department.

No. 3001 of 1940.

Bombay, 30th Novr. 1940.

Returned, with compliments.

2. Two sets of plans are being prepared and will be forwarded to Government within a fortnight. No spare copy of the report with appendices is available; the spare one having been supplied to the Director of Industries, Bombay.

Electrical Engineer to Govt.

DFP.

2272/36

(R.B.) Submitted. ×

2. The receipt of the two sets of plans may be awaited till the 14th inst. and they may then be excluded for, if necessary.

R.B.
3/11/40

× It is understood that the time required for supply is on account of different services required to be done

3.11.40

T.S. (Clerk) V

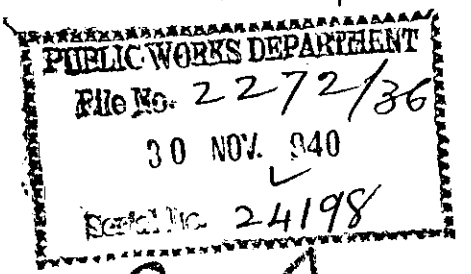
(R.B.) Resubmitted.

2. These papers may be referred again u.o. to the El. Engr. for favour with a request kindly to supply the two sets of plans required to enable us to do so as early as possible.

R.B.
20/11/40

await WR 5th Jan.

MB. 30/11



T.S. (Clerk) V

MB
30/11/40

Y.P.P.—S 2643—12,000z—6-40—F2 & R(a)2
G.R., P.W.D., No. S. 63/1257, dated 7-2-24.]

Spl.—Elec. 56 e.

All communications should be addressed to THE ELECTRICAL ENGINEER TO GOVERNMENT by title only and NOT by name.
Telegraphic address—ELEXEN, BOMBAY.
Telephone No.-39165.

OFFICE OF THE ELECTRICAL ENGINEER TO GOVERNMENT,

P. W. D. OFFICES, CHURCH GATE STREET:

Bombay, 23rd *December* *1940.*

In reply please quote without fail No. 2878/3228 ***of 194*** 0.

From

THE ELECTRICAL ENGINEER TO GOVERNMENT,
Public Works Department,
BOMBAY;

To

The Secretary to Government,
Public Works Department,
Bombay.

Sir,

Re:- Report of the Hydro-Electric Survey Committee.

With reference to this office No.D.17-B/3001 dated the 30th November 1940, I have the honour to forward herewith two sets of plans of the Hydro-Electric Survey of the Province.

I have the honour to be,

Sir,

Your most obedient servant,

Electrical Engineer to Govt.

P.

2272/36/5

(M.B.)

Submitted.

2. The two sets of plans
refd. to overpage ~~have~~ being
separately sent to D.S. & W.K. Engrs.

Record.

14/1/41.

sent on 14-1-41

PB.
File
14/1/41

AS

× 2272/36 MBr.
24198

MBr 8/1/41

2 Rolls of Plans

PUBLIC WORKS DEPARTMENT
File No. 2272/36
23 DEC. 1940
Serial No. ~~2597~~ 5

21

23-12